PROGRAM FOR ARTERIAL SYSTEM SYNCHRONIZATION (PASS) FY12/13 CYCLE

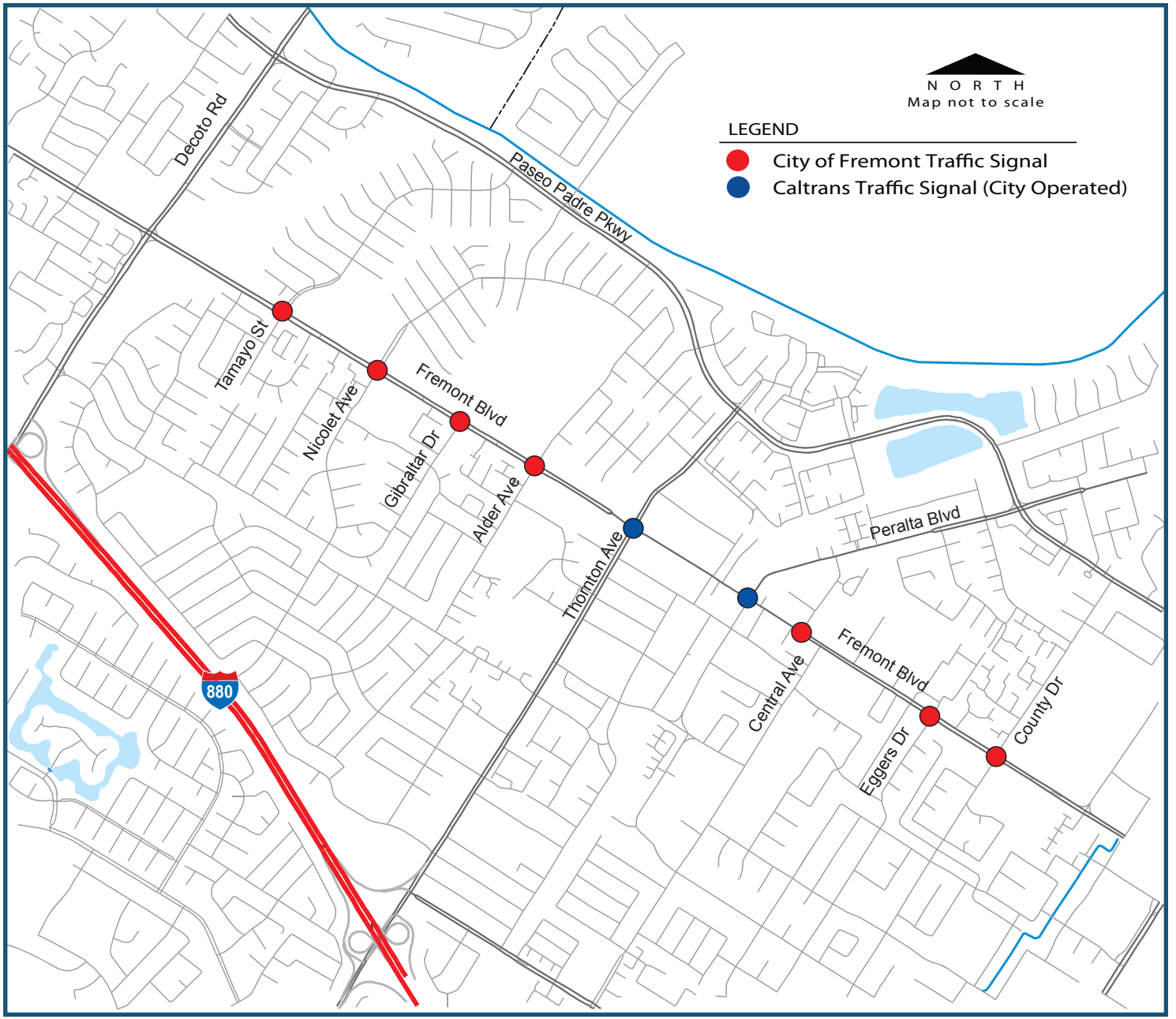
# Fremont Blvd ▪ Traffic Signal Timing Project

City of Fremont I Caltrans I Metropolitan Transportation Commission

## PROJECT OVERVIEW

The City of Fremont received a Program for Arterial System Synchronization (PASS) grant from the Metropolitan Transportation Commission to optimize and coordinate traffic signals during weekday AM, midday and PM for nine intersections along Fremont Blvd between Tamayo St and Country Dr. In addition, the project included development and implementation of an AM school peak coordination plan to address congestion near schools along the corridor.

This PASS project involved the completion of the following major tasks: 1) collecting traffic volumes (ADT) and turning movement counts, including bike and pedestrian counts, at all project intersections; 2) analyzing this traffic data including collision data to develop optimized signal timing plans; 3) implementing and fine-tuning the plans in the field; and 4) conductinig travel time surveys to analyze the performance of the new timing plans, including the effects on transit.



## Benefits to Various Modes

**Benefits to Bicyclists:** For improved safety, the minimum green intervals were reviewed for bicyclists on the corridor. Changes to minimum green intervals were made at one project intersection.

**Benefits to Pedestrians:** For improved safety, the pedestrian intervals were reviewed and increased at most intersections based on current 2012 California MUTCD standards. Changes to pedestrian timing were made at all nine project intersections.

**Benefits to Transit:** To assess the impacts on transit, travel time runs on transit vehicles were conducted both before and after the new timings were implemented. These evaluation results, as shown in the table to the right, demonstrate that the project provides 5% travel time savings for buses along this corridor.

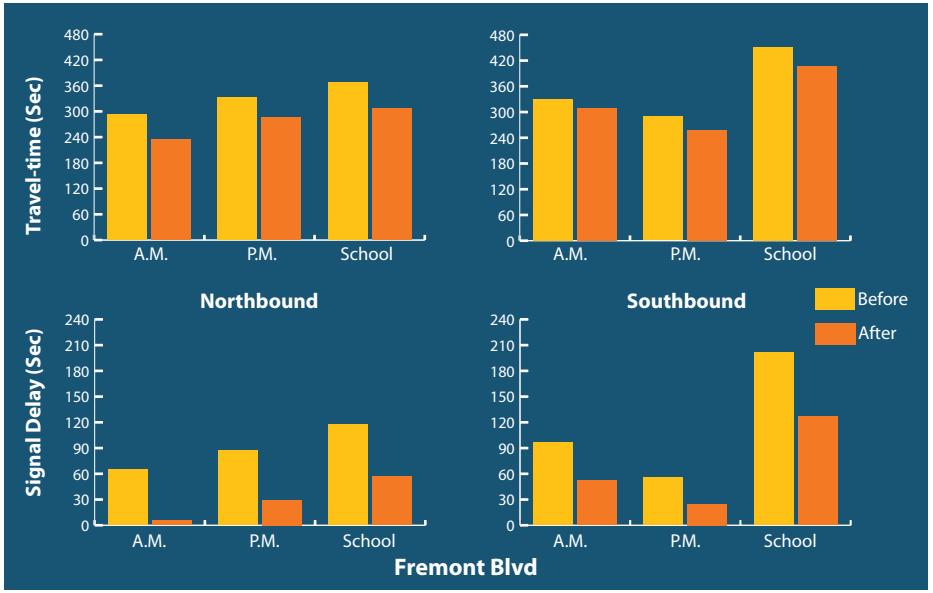
**Benefits to Traffic Safety:** To enhance traffic safety, the yellow clearance timing parameters were updated based on current standards. Changes to clearance intervals were required at two project intersections. The performance results show a reduction of 50% in the number of stops which is a major factor for secondary and rear end collisions.

| Project Costs | |
|---|---|
| Consultant Costs (Weekday Peak Coordination Plans, Transit Travel Time Runs) | $28,290 |
| Other Project Costs (Additional ADT count, and Visio Covers) | $815 |
| Agency Staff Costs (Estimate) | $5,590 |
| ***Total Costs*** | **$35,055** |

**Project Benefits**

| *Measures* | *Annual Average* | | *Lifetime (5 Years)* | |
|---|---|---|---|---|
| | *Savings* | *Monetized Savings* | *Savings* | *Monetized Savings* |
| Travel Time Savings | 10,772 hrs. | $205,614 | 53,860 hrs. | $1,028,069 |
| Fuel Consumption Savings | 25,667 gal. | $103,148 | 128,333 gal. | $515,739 |
| ROG Emissions Reduction | 0.14 tons | $177 | 0.70 tons | $883 |
| NOx Emissions Reduction | 0.16 tons | $2,877 | 0.80 tons | $14,383 |
| PM10 Emissions Reduction | 0.03 tons | $4,232 | 0.15 tons | $21,159 |
| CO Emissions Reduction | 1.27 tons | $98 | 6.34 tons | $490 |
| | | | ***Total Lifetime Benefits*** | **$1,580,722** |
| Transit Travel Time Savings | 610 hrs. | $11,641 | 3,049 hrs. | $58,204 |
| | | | ***Total Lifetime Benefits with Transit*** | **$1,638,926** |

| **Overall Project Benefits** | *Auto* | *Transit* |
|---|---|---|
| Average Decrease in Travel Time | **11%** | **5%** |
| Average Speed Increase | **12%** | **7%** |
| Average Fuel Savings | **8%** | N/A |
| Average Reduction in Signal Delay | **45%** | N/A |
| Average Reduction in Number of Stops | **50%** | N/A |
| **Overall Benefit-Cost Ratio** | **47:1** | |




## Project Benefits Summary

**Average Reduction in Auto Signal Delay: 45%**

**Average Reduction in Number of Stops: 50%**

**Auto Fuel Consumption Savings: 8% or 128,333 gallons**

**Total Emissions Reduced (ROG, Nox, PM10, CO): 7.99 tons**

**Auto Travel Time Savings: 11% or 53,860 hours**

**Average Transit Travel Time Savings: 5% or 3,049 hours**

**Overall Project Benefit-cost Ratio = 47:1**



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